



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,599	08/03/2003	Hung-Hui Ho	REAP0018USA	1598
27765	7590	08/23/2005	EXAMINER	
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			LUU, MATTHEW	
			ART UNIT	PAPER NUMBER
			2676	
DATE MAILED: 08/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/604,599

Applicant(s)

HO ET AL.

Examiner

LUU MATTHEW

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21, 23, 30, 31, 33 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (US 2003/0234795).

Regarding independent claims 21 and 31, Lee discloses (Fig. 3) a color conversion apparatus for converting an input color being in a first color space (Y, V, U) to an output color being in a second color space (R, G, B), wherein both the input color and the output color include a plurality of color elements, the apparatus comprising:

a first look-up table (LUT) (301) being coupled to a first color element (Y) of the input color for outputting a corresponding first converted color element;

a second LUT (303) being couple to a second color element (V) of the input color for outputting a corresponding second converted color element; and

an adder circuit (Adders- R, G and B)(311, 315 and 317) being coupled to the first LUT (301) and the second LUT (303) for summing the first converted color element

and the second converted color element to thereby generate a color element of the output color ( R ). See sections 51-56.

Regarding claims 23 and 33, Lee discloses (Fig. 3) the adder circuit (311, 315 and 317) is further coupled to a third color element (U) to thereby generate a temporary color element (any of the R, G and B color components).

Regarding claims 30 and 40, Lee discloses (Fig. 1) a LCD device (115).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22, 24-28 and 32, 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 2003/0234795) in view of Champion et al (6,774,953).

Regarding claims 22 and 32, note the rejection as set forth above with respect to claims 21 and 31.

Lee fails to teach a gamma correction circuit coupled to a third color element of the input color for generating a gamma corrected color element.

However, Champion discloses (Fig. 2) a gamma circuit (Gamma LUT, 208) coupled to all of three-color elements (R, G, B) for generating the gamma corrected color elements (R'L, G'L and B'L). See column 5, lines 13-15; and column 9, lines 50-52.

Therefore, it would have been obvious to a person of ordinary skill in the art to use the gamma correction circuit (208) of the color conversion system of Champion into the color conversion system of Lee to provide the best quality output color elements for the best quality pictures.

Regarding claims 24 and 34, Champion discloses (Fig. 2) a gamma circuit (Gamma LUT, 208) coupled to all of three color elements (R, G, B) for generating the gamma corrected color elements (R'L, G'L and B'L). See column 5, lines 13-15; and column 9, lines 50-52.

Regarding claims 25 and 35, Champion further discloses (Fig. 3) the first LUT (306) maps a plurality of values (308) for the first color element; and the second LUT (320) maps a plurality of values (322) for the second color element (Column 7, lines 17-60).

Art Unit: 2676

Regarding claims 26 and 36, Champion discloses (Fig. 4) the output value (second color space) for each element (R, G, B) is calculated using 8 values of the input color space.

Regarding claims 27-28 and 37-38, Champion discloses (Fig. 3) the LUT is indexed using a number of bits of the values of the first color space; The LUT is indexed using the five most significant bits of the values of the first color space (Column 5, lines 50-65).

### ***Claim Rejections - 35 USC § 103***

Claims 29 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee as applied to claims 21 and 31 above, and further in view of Acharya (6,694,061).

Lee fails to disclose a plurality of sub-tables.

However, Acharya teaches the LUTs that have three separate sub-tables (Column 6, lines 35-37).

It would have been obvious to the person of ordinary skill in the art to use the three sub-tables, one for each component, into the color conversion system Lee to provide an equal number of bits for each color components in order to facilitate the color conversion process.

### ***Response to Arguments***

Applicant's arguments with respect to claims 21-40 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Shyu (5,841,422) discloses a color space conversion apparatus using LUTs.

-Greene (6,043,804) color format conversion incorporating color look-up table and post look-up arithmetic operation.

-Shyu (6,211,917) discloses a method for performing plural matrix multiplication operations using a shared LUT.

-Liang (5,579,031) discloses (Fig. 3) a gamut circuit (70) in a color conversion apparatus.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2676

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUU MATTHEW whose telephone number is (571) 272-7663. The examiner can normally be reached on Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BELLA MATTHEW can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu



**MATTHEW LUU**  
**PRIMARY EXAMINER**